

### **REMARKS**

Favorable reconsideration and allowance of this application are requested.

Claims 17-33 remain pending in this application, of which claims 20 and 25-28 have been withdrawn from consideration as being directed toward patentably distinct species. In this regard, on further reflection, applicants agree with the Examiner's assessment that claims 17-19, 21-24 and 29-33 are readable on the elected species instead of claim 17, 19-21, 22-24 and 29-33 as noted in applicants' response of April 10, 2008 since claim 18 is directed to the elected species of Formula III by further defining L<sup>1</sup> while claim 20 further defines M<sup>1</sup> and L which are present in the non-elected species of Formula II.

#### **1. Response to 35 USC §112 Rejection**

Claim 33 attracted a rejection as allegedly being indefinite under 35 USC §112, second paragraph. In this regard, the Examiner seems to be of the view that the abbreviation "Mw" stands for molecular weight and thus asserts that claim 33 is unclear as to whether a weight average or number average molecular weight is being defined.

However, official notice can be taken of the fact that the abbreviation "Mw" stands for *weight average* molecular weight. In contrast, the abbreviation "Mn" stands for *number average* molecular weight. See in this regard, the abbreviations at <http://www.polymerchemistryhypertext.com/MWdefinitions.htm> .

Thus, applicants suggest that claim 33 is in fact statutorily definite in that the term "Mw" connotes a weight average molecular weight. Withdrawal of the rejection advanced under 35 USC §112, second paragraph, is therefore in order.

## **2. Response to 35 USC §103 Rejection**

The only issue remaining to be resolved in this application is the Examiner's rejection of claims 17, 19-21, 22-24 and 29-33 under 35 USC §103(a) as allegedly "obvious" and hence unpatentable over Sacchetti et al. (US 5,698,487) in view of Wu et al. (US 6,555,494) and Sangokoya et al. (US 5,565,395).

Applicants respectfully disagree with the Examiner's conclusion that Sacchetti discloses a supported metallocene catalyst, which should be activated with aluminoxane, more accurate methyaluminoxane (MAO). The presently claimed catalyst system differs from Sacchetti on at least three different levels.

First, with regard to the catalyst itself, applicants note that Sacchetti discloses a metallocene catalyst. Metallocene catalysts have 2 cyclopentadienyl (Cp) rings and a transition metal of Group IV (titanium (Ti), zirconium (Zr) or Hafnium (Hf)) of the periodic table, as mentioned by Sacchetti;  $\text{Cp}_2\text{TiCl}_2$ ,  $\text{Cp}_2\text{ZrCl}_2$  and  $\text{Cp}_2\text{HfCl}_2$ . The presently claimed catalyst however has only 1 cyclopentadienyl ring (mono-Cp). In addition, the presently claimed catalyst contains a transition metal of Group VI, namely chromium (Cr) – *not* Group IV.

Second, the catalyst system disclosed in Sacchetti is preactivated with triisobutylaluminium (TIBAL) before it is put on the support. In contrast, the present catalyst system is not preactivated at all. The different activation chemistry underscores the difference between Sacchetti's metallocene catalyst containing a transition metal of Group IV and the present catalyst containing a transition metal of Group VI.

Third, Sacchetti's catalyst system is only active towards polymerization if used in combination with methylaluminumoxane (MAO), whereas the presently claimed catalyst system is free of MAO, yet active towards polymerization. Sacchetti therefore discloses the immobilization of metallocenes which need MAO to become active towards

polymerization. The presently claimed catalyst is *not* a metallocene and consequently there is no motivation to combine Sacchetti et al. with Wu et al. and Sangokoya et al. If, on the other hand, the Examiner would judge the presently claimed catalysts as being a metallocene, then it would be surprising indeed that the present catalyst system does not need MAO to become active towards polymerization. This would – in itself – already be an unexpected result and therefore proof of *nonobviousness*.

Therefore, an ordinarily skilled man in the art would not combine Sacchetti et al. with Wu et al. and Sangokoya et al, because Sacchetti et al. neither mentions nor teaches how to obtain a ***mono-Cp chromium-containing*** supported catalyst, and have polymerization without the use of MAO. There are no documents known to the applicants which indicate that mono-Cp chromium-containing catalysts can be put on the support and have polymerization activity without MAO. The applied references of record therefore confirm this lack of knowledge in the art. As such, the presently claimed invention would not have been “obvious” at all from any combination of the applied references of record since the art clearly is not possessed with knowledge that mono-Cp chromium-containing catalysts can be put on the support and have polymerization activity without MAO.

Withdrawal of the rejection advanced under 35 USC §103(a) based on Sacchetti et al. with Wu et al. and Sangokoya et al is therefore in order.

**SEVERN et al**  
**Serial No. 10/590,626**  
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### **3. Fee Authorization**

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

By: /Bryan H. Davidson/  
Bryan H. Davidson  
Reg. No. 30,251

BHD:dlb  
901 North Glebe Road, 11<sup>th</sup> Floor  
Arlington, VA 22203-1808  
Telephone: (703) 816-4000  
Facsimile: (703) 816-4100